My invention relates to railway car trucks and more particularly to a railway car truck having ride control or snubbing means associated with each bolster end and guide columns on the side frames.

An object of my invention is to provide a novel interlocking arrangement between the side frames and the bolster in a railway car truck of the type described wherein the bolster is indulgingly engaged with the side frame columns by direct contact therewith instead of indirectly by the friction shoes of the snubbing means associated with the bolster and side frame columns, thereby reducing wear and preventing shocks upon the friction shoes during abrupt lateral movement of the bolster relative to the side frames in starting or stopping of the train or under service conditions.

Another object of my invention is to provide a novel form of side frame for a railway car truck wherein the side frame columns and brake hanger brackets provide bolster guide surfaces therebetween having a maximum bearing area on the inboard side of said frame and interlocking means are provided on the outboard side of the columns for an associated bolster.

Another object of my invention is to provide a novel bolster having pockets adjacent opposite ends thereof housing associated friction means and having a guide surface providing a maximum bearing area at the inboard side of each pocket for engagement with the columns of an associated side frame, the ends of the bolster being formed to have interlocking engagement with the outboard sides of columns of an associated side frame.

My novel interlocking arrangement is shown and described in a car truck comprising side frames of truss type having inboard and outboard confining flanges on the tension member for the bolster-supporting springs. This arrangement for confining the springs has proven highly satisfactory under service conditions and in order to permit the utilization of this beneficial feature, the outboard side of my novel side frame is formed to permit the insertion of a bolster therein for interlocking the bolster with the side frame without interference with the confining flanges.

In the drawings:

Figure 1 is a side elevation of a four wheel truck structure embodying my invention, only one-half of the structure being shown inasmuch as the structure is similar at opposite ends of the truck.

Figure 2 is a transverse sectional view through the truck structure shown in Figure 1 with a portion of the bolster shown in elevation, the section being taken substantially in the vertical plane blesting the truck transversely as indicated by the line 2—2 of Figure 1.

Figure 3 is a top plan view of the truck structure shown in Figures 1 and 2, partly in section, the section being taken substantially in the horizontal plane indicated by the line 3—3 of Figure 1.

Figure 4 is a fragmental side elevation of the truck frame, viewing the same from the inboard side thereof, and Figure 5 is a view of the same taken from the left in the transverse vertical plane indicated by the line 5—5 of Figure 4.

Describing my novel truck arrangement in greater detail, the truck structure comprises the side frame of truss type with the compression member 2, the tension member 4, and spaced columns 6, 6 merging with said tension and compression members to form the central bolster opening 8 and spaced window openings 10, 10, said tension and compression members also merging adjacent their corresponding ends with the integrally formed journal box 12.

The compression member 2 above the bolster opening may be of generally box section (Figures 2 and 5) having the integral brake hanger brackets 13, 13 on the inboard side thereof at opposite sides of said bolster opening. Beneath said bolster opening, the tension member may also be of box section with the central longitudinal reinforcing web 14 and with the top wall widened and formed with upstanding inboard and outboard flanges 16 and 18 defining the spring seat 20. Positioned on the spring seat 20 of the tension member in said bolster opening may be a sprang group generally designated 22 and comprising a plurality of coil springs, said springs being retained in normal relationship not only by the confining flanges on the tension member but also by the legs 24, 24 downwardly projecting from the associated bolster generally designated 26.

The bolster 26 is of boxlike form comprising the side walls 28, 28, the top wall 30 and the bottom wall 32, said side walls 28, 28 having the aligned openings 34, 34 permitting associated brake rods to extend therethrough and said top wall having the usual center bearing 36 and side bearing seats 37, 37. The side walls 28, 28 flare outwardly adjacent each end of the bolster positioned within the bolster opening and then parallel each other and adjacent the columns 6, 6 and brackets 13, 13. The parallel side walls are formed with pockets 38, 38 therein housing tric-
tion means engageable with the side frame columns for snubbing the oscillations of the spring group 22 upon vertical movement of the bolster. Extending between the top and bottom walls of each pocket and merging therewith and the side walls of each pocket 38, 38 are inclined webs 40, 40 having surfaces in complementary engagement as at 42 with inclined surfaces on a shoe 44, said shoe having an opening therein receiving a spring 46 seated at its upper end against the top wall of the bolster and said webs 40, 40 and at its lower end on a horizontal wall 48 of the shoe adjacent a spring of the spring group 22, said spring 46 acting to urge said shoe downwardly and along the inclined surfaces of the webs 40, 40 into frictional engagement with a friction panel 50 on the adjacent column, each of said columns being chambered as at 52 (Figure 5) for welding the associated friction panel thereto. The above-described friction device is shown and described in greater detail in Light Patent No. 2,798,414 for Car truck issued June 19, 1946, and forms no part of the present invention.

In operation of a car truck embodying a friction device of this type, it will be apparent that any abrupt movement of the truck as in starting or stopping will have a tendency to cause the friction shoes on one side of the bolster to be urged violently against the associated friction panels 50 while the shoes on the other side of the bolster ends will be forced outwardly of the bolster by the associated springs 46. This actuation of the shoes tends to drive the same upward and down the inclined surfaces of the webs 40, 40 and causes considerable shock upon the shoes whereby the same may stick in operation as well as producing considerable wear which may render the shoes inoperative due to their interference with the bolster-supporting spring positioned beneath the horizontal wall 48 of each shoe.

In order to obviate this undesirable actuation of the shoes, and referring now to Figures 3, 4, and 5, each bolster bracket 13 is formed with a flat vertical bolster guide surface 54 between the extremity thereof and the associated column for complementary engagement of the guide surface 58 of the associated side wall 28 of the bolster end on the inboard side of said pocket and each column is formed on the inboard side thereof with an integral flange or web 58 extending outwardly therefrom and forming a continuation of the wall of said column supporting said friction panel, said web 58 merging at the upper end thereof with said bracket 13 and having a bolster guide surface 56 common with the surface 54 of the bracket 13 for complementary engagement with the associated guide surface 58 on the side wall 28 of the bolster. Each of such webs 58 is provided with gussets 62 merging with the associated column for reinforcing said web.

It will be apparent that the relatively large area afforded by the guide surfaces of the brake hanger brackets 13 and the webs 58 and the disposition of these surfaces adjacent the complementary surfaces of the bolster side walls will permit only a slight lateral movement of the bolster relative to the columns 6, 6 and, accordingly, the shoes can only be urged up and down the inclined surfaces a distance commensurate to the space between these surfaces with the result the aforesaid undesirable actuation of the shoes will be prevented.

The bolster is slidably interlocked with the side frames by providing the outboard side of each column with a vertical flange or gib 64 having the reinforcing gussets 66 at opposite ends thereof and of merging with the column adja-

cent the window opening, said gib 64 being receiv-

ed within a vertical slot or channel 67 in the adjacent bolster end, said channel being partially defined by the lug 68 on the bolster extremity in overlapping relationship with respect to and extending between the webs 40, 40 whereby longitudinal movement of said bolster is prevented and the bolster is slidably interlocked with the side frame. It may be noted that the overall width of the bolster end is such as to be receivable within the relatively wide portion of the side frame at the bottom of the bolster opening 8 above the inboard and outboard flanges 16 and 18 and that the bolster lug 68, defining the outboard end of the channel 67 in the bolster end, has a depth indicated by "A" (Figure 1) which is substantially less than the overall depth of the bolster end and also less than the distance between the lower end of the gib 64 on the column and the upper end of the outboard flange 18 as indicated at "B," whereby the bolster end may be inserted in the bolster opening wherein the side flanges are elevated for reception of the gib 64 on the columns in the channels 67 at opposite sides of the bolster and whereupon the spring group may be positioned thereunder, said spring group thus providing a resilient support for said bolster end. It may further be noted that the overall depth of the bolster end is substantially greater than the distance "B" between the outboard flange 18 and the lower end of the gib 64 to afford generous bearing areas, and upon insertion of the bolster end and elevation thereof, the gib 64 will be slidably engaged with the bolster end above the lugs 68 and received in the channels 67 in the bolster end.

An advantageous feature of my novel bolster is that the relatively wide separation of the friction shoes in the side walls of each bolster end will permit the friction shoes to wear longer in service as they will not become inoperative due to interference with the bolster-supporting springs. Also, ample space is provided between each pocket and the central wall 70 of the bolster end to permit the ready insertion and removal of rivets in the side bearing plates (not shown) in the openings in the seats 37, 37 on the bolster, thus facilitating the assembly and disassembly of the plates with the bolster.

It is to be understood that I do not wish to be limited by the exact embodiment of the device shown which is merely by way of illustration and not limitation as various and other forms of the device will, of course, be apparent to those skilled in the art without departing from the spirit of the invention or the scope of the claims.

I claim:

1. In a railway car truck, a side frame comprising a compression member, a tension member, and spaced columns defining a bolster opening, said tension member being of box section with the top chord of said box section widened and formed with inboard and outboard flanges defining a spring seat, a spring group on said seat, a flange on the inboard side of each column, a sending a vertical bolster support, and extending a bolster end seated on said spring group and having side walls adjacent said surfaces adapted for complementary guiding engagement therewith, a verti-
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5. Said bolster and said guide surfaces cooperating with each other for stopping relatively violent lateral oscillations of said bolster, friction means housed in said bolster end and in engagement with said columns and providing means for dampening relatively minor lateral oscillations of said bolster, and substantially vertical tongue and groove interlocking means on the outboard side of respective columns engaging said bolster end and for slidably interlocking said columns therewith.

6. In a railway car truck, a side frame comprising a compression member, a tension member and spaced columns defining a bolster opening, a spring group on said tension member in said opening, a bracket on the inboard side of each column, a vertical bolster guide surface on said bracket, a vertical flange on the inboard side of each column, a bolster guide surface on each flange substantially coplanar with the surface on the associated bracket, a bolster end seated on said spring group and having surfaces adjacent said guide surfaces, and said bolster surfaces and said guide surfaces cooperating with each other to stop relatively violent lateral oscillations of said bolster, friction means housed in said bolster end and in engagement with said columns and serving to dampen relatively minor lateral oscillations of said bolster, and interlocking means on said columns cooperating with said bolster to slidably interlock said bolster therewith.

6. In a railway car truck, a side frame having spaced columns defining in part a bolster opening, a spring group in said opening, a bolster seated on said spring group, a bolster end having parallel side walls and engaging said bolster surfaces likewise engaged and serving to dampen relatively small lateral oscillations of said bolster, friction means in said columns cooperating with said bolster to slidably interlock said bolster end and such columns affording guide surfaces thereon, friction means carried in said bolster end at opposite sides thereof adjacent said columns and damping relatively large and more violent lateral oscillations of said bolster, and interlocking means associated with said columns outboard thereof for interlocking said bolster therewith.

7. In a railway car truck, a side frame comprising a compression member, a tension member and spaced columns defining a bolster opening, a bolster end spring-supported from said tension member in said opening, a flange extending outwardly from the inboard side of each column, opposed bolster guide surfaces on said flanges adjacent the side walls of said bolster end for guiding engagement therewith, friction means housed in the sides of said bolster and in engagement with said columns, and interlocking means on said columns cooperating with said bolster end to slidably interlock said bolster end therewith, said means comprising a gib extending on the outboard side of each column, and a vertical channel in each said bolster end receiving the same, said channel being defined at its outboard end by a lug of substantially less depth than the overall depth of the bolster end and the distance between said gib and said surface of each column merging with the associated bracket, a vertical bolster guide surface on each flange coplanar with the surface on the associated bracket, a bolster end seated on said spring group and having surfaces adjacent said guide surfaces,
8. In a railway car truck, a side frame having spaced columns defining in part a bolster opening, a spring group in said opening, a bolster end seated on said spring group, a flange extending outwardly from the inboard side of each column, opposed bolster guide surfaces on said flanges for engagement with the side walls of said bolster end when relatively large lateral oscillation of said bolster occurs, friction means housed in said side walls and in engagement with said columns and serving to dampen relatively minor lateral oscillations of said bolster, and interlocking means on said columns for slidably interlocking said bolster end therewith, said means comprising a gib extending from the outward side of each column and a vertical channel in each side wall receiving the same.

9. In a railway car truck, a side frame having spaced columns defining in part a bolster opening, a spring group in said opening, a bolster end seated on said spring group, opposed walls on said columns presenting friction surfaces, friction means in said bolster end in engagement with said friction surfaces and serving to dampen relatively small lateral oscillations of said bolster, a vertical member formed integral with said columns on the inboard side thereof and having a bolster guide surface substantially coplanar with said friction surfaces, and guide face formed on said bolster end inboard of said columns for engagement with the guide surfaces of said walls when a relatively large oscillation of said bolster occurs, said engagement of said faces with said guide surfaces occurring well before the capacitive limit of said friction means is reached, and having means on said columns on the outboard side thereof slidably interlocking said bolster end and said columns.

10. In a railway car truck, a side frame having spaced columns defining in part a bolster opening, a spring group in said opening, a bolster seated on said spring group, said bolster and columns having parallel opposed side walls, friction panels recessed in the side walls of said columns and having faces in parallel planes, friction means in the side walls of said bolster for engagement with said friction panels, a vertical flange on the inboard side of each column having a bolster guide surface coplanar with the associated friction face and engageable with the opposed side wall of said bolster only when a relatively large lateral oscillation of said bolster occurs, and means slidably interlocking said bolster and columns on the outboard side of said frame.

11. In a railway car truck, a side frame having spaced columns defining in part a bolster opening, a spring group in said opening, a bolster end seated on said spring group, a vertical flange on the inboard side of each column, said flanges having opposed bolster guide surfaces and said bolster end having side walls with guide faces complementary to said surfaces for engagement therewith only when a relatively large lateral oscillation of said bolster occurs, friction means in said side walls in engagement with said columns and centering said bolster with respect to said columns and serving to dampen relatively small oscillations of said bolster, and substantially vertical tongue and groove interlocking means disposed at the outboard side of said frame for slidably interlocking said bolster end and columns.

12. In a railway car truck, a side frame having spaced columns defining in part a bolster opening, a spring group in said opening, a bolster end seated on said spring group, a vertical flange extending outwardly from the inboard side of each column, opposed bolster guide surfaces on said flanges for engagement with the side walls of said bolster end in engagement of the bolster occurs, friction means housed in said side walls and in engagement with said columns and accommodating only relatively minor oscillations of said bolster, and interlocking means on said columns on the outboard side thereof cooperating with said bolster end to slidably interlocking said bolster end therewith.

13. In a railway car truck, a side frame comprising a compression member, a tension member and spaced columns defining a bolster opening, a spring group seated on said tension member in said opening, a bracket on the inboard side of each column at the juncture thereof with said compression member, a vertical flat bolster guide surface on said bracket, a vertical flange on the inboard side of each column merging with the associated bracket, a bolster sliding on each flange coplanar with the surface in the associated bracket, a bolster end seated on said spring group, said bolster end having side walls adjacent said surfaces and adapted to have complementary guiding engagement therewith, friction means housed in said side walls and in engagement with said columns, a vertical channel in each of said walls outward said columns, and a gib formed on each column and received within the adjacent channel slidably interlocking said bolster end and side frame, said channel being defined at its outward end by a lug of substantially less depth than the over-all depth of the bolster end, and the distance between said gib and said tension member being less than the over-all depth of the bolster end and greater than the depth of said lug, whereby said bolster end may be inserted and elevated in said bolster opening for slidably interlocking said bolster end with said columns.

14. In a railway car truck, a side frame comprising a compression member, a tension member and spaced columns defining a bolster opening, a spring group in said opening, a bolster seated on said spring group, said bolster and columns having parallel opposed side walls, friction panels recessed in the side walls of said columns and having faces in parallel planes, friction means in the side walls of said bolster for engagement with said friction panels, a vertical flange on the inboard side of each column having a bolster guide surface coplanar with the associated friction face and engageable with the opposed side wall of said bolster only when a relatively large lateral oscillation of said bolster occurs, and means slidably interlocking said bolster and columns on the outboard side of said frame.

15. In a railway car truck, a side frame comprising tension and compression members and spaced columns defining a bolster opening, a bolster.
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ster end spring-supported from said tension member in said opening, a flange extending outwardly from the inboard side of each column, opposed bolster guide surfaces on said flanges adjacent the side walls of said bolster end for guiding engagement therewith, and interlocking means on said columns cooperating with said bolster end to slidably interlock said bolster end therewith, said means comprising a girt extending from the outboard side of each column, and a vertical channel in each side of said bolster end receiving the same, said channel being defined at its outboard end by a lug of substantially less depth than the over-all depth of the bolster end and the distance between said girt and said tension member being less than the over-all depth of the bolster end and greater than the depth of said lug, whereby said bolster end may be inserted and elevated in said bolster opening for slidably interlocking said bolster end with said columns.

16. In a railway car truck, a side frame having tension and compression members and spaced columns defining a bolster opening, a bolster end supported on said tension member in said opening, and means projecting outwardly from the inboard sides of said columns, opposed bolster guide surfaces on said means for engagement with the sides of said bolster, a channel in each side of said bolster end outboard said columns, said channel being defined at its outboard end by a lug of substantially less depth than the over-all depth of said bolster end, a girt on each column received within said channel, the distance between said girt and said tension member being less than the over-all depth of the bolster end and greater than the depth of said lug, whereby said bolster end may be inserted and elevated in said bolster opening for interlocking said bolster with said columns.

CLAUS J. WERNER CLASEN.

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